ENVIRONMENTAL ASSESSMENT

FOR

RECONSTRUCTION AND IMPROVEMENT OF VARIOUS ROADWAYS AT SHILOH NATIONAL MILITARY PARK

HARDIN COUNTY, TENNESSEE

Prepared by the
U.S. Department of Transportation
Federal Highway Administration
Eastern Federal Lands Highway Division

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Prepared for the
U.S. Department of the Interior
National Park Service
Shiloh National Military Park

Prepared pursuant to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (43 CFR 1500)

ABSTRACT

This Environmental Assessment (EA) addresses the plans of the National Park Service (NPS) to perform needed rehabilitation improvements to several Park roads, intersections, parking areas, and drainage structures within the Shiloh National Military Park, Hardin County, Tennessee. These roadways include: Pittsburg Landing Road, Welker Battery Road, Brown's Landing Road, Hagy Field Road, Corinth Pittsburg Landing Road, Corinth Pittsburg Landing Road (Historic Trace), Sherman Road, Reconnoitering Road, and Eastern Corinth Road.

The National Park Service (NPS) has two goals in selecting a preferred alternative. The first is to improve the historical accuracy of the Park's roadway system through the realignment of some routes. These realignments would closely resemble those depicted on the Historical Base Map of April 6-7, 1862. The second goal is to improve the overall condition of, and the safety concerns associated with, the Park's roadways and structures. Definite beginning and ending points to the Tour Route are needed to improve visitor access and reduce driver confusion. The NPS would like to meet all goals while minimizing impacts to the Park's natural and cultural resources.

This document determines which aspects of the proposed action have potential for social, economic, or environmental impact. It also identifies measures that may mitigate adverse environmental impacts. Public involvement and coordination/consultation with other Government agencies is summarized in this document.

This document is prepared pursuant to the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), Section 7 of the Endangered Species Act (ESA), the Clean Water Act (CWA), and Executive Orders protecting wetlands and floodplains.

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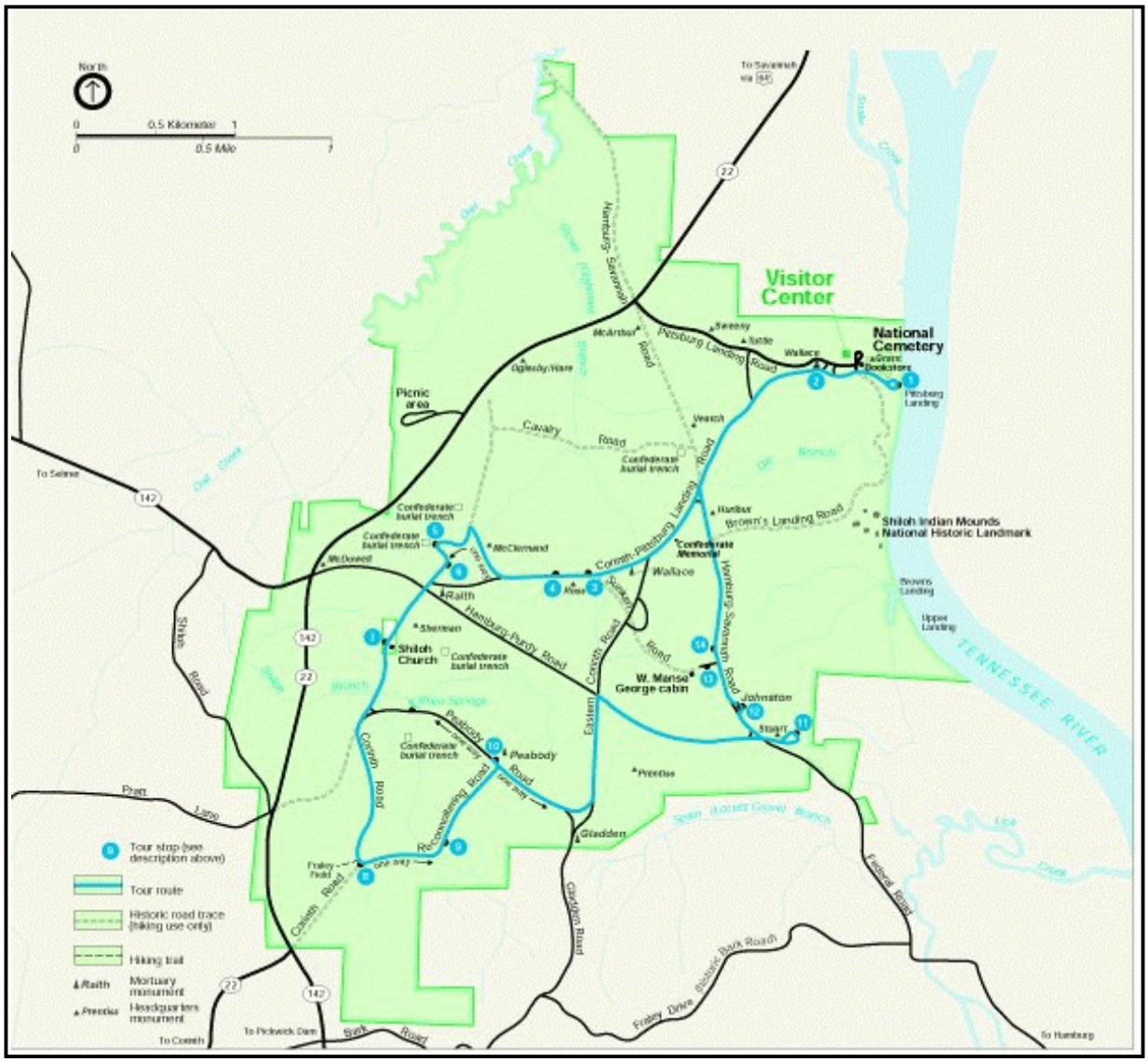
I. Purpose and Need For the Action

A. Project Location

Shiloh National Military Park is located in Hardin County, in the southwestern portion of Tennessee just 17 miles north of the Mississippi state line. Situated in a rural area outside the small town of Savannah, the Park covers over 3700 acres. Bounded on the east by the 100-foot high bluffs that overlook the Tennessee River, this peaceful area is made of mixed hardwood forest, open fields and small areas of eastern red cedar. The Park was established in1894 to preserve the scene of the first major battle in the Western theater of the Civil War.

Location Map



B. Description of Proposed Action

The National Park Service proposes to rehabilitate several roads, parking areas, drainage structures, and intersections within the Shiloh National Military Park. These roadways include: Pittsburg Landing Road, Welker Battery Road, Brown's Landing Road, Hagy Field Road, Corinth Pittsburg Landing Road, Corinth Pittsburg Landing Road (Historic Trace), Sherman Road, Reconnoitering Road, and Eastern Corinth Road.

1. Pittsburg Landing Road

Pittsburg Landing Road will be overlaid with asphalt pavement from the Park entrance at TN Route 22 to just east of Chambers Field. Beginning east of Chambers Field and terminating near the front gate of the cemetery the roadway would be relocated. Approximately 380 meters of new roadway would be constructed along the old roadway alignment, which is still present today. This realignment would streamline the numerous roadway crossings present just west of the visitor center parking area. This realignment would also result in the removal of approximately 350 meters of pavement from the existing Pittsburg Landing Road, which would be returned to green space.

The existing main visitor center and cemetery parking areas would be slightly reconfigured and reconstructed to accommodate a few additional automobile and recreational vehicle stalls within the existing parking area dimensions, and to facilitate improved driver movement.

2. Welker Battery Road

The maintenance service road (Welker Battery Road) would be extended from the existing Pittsburg Landing Road alignment to the proposed new alignment as part of the intersection reconstruction. The roadway will be extended approximately 40 meters through an existing clearing.

3. Brown's Landing Road

Approximately 150 meters of the existing Brown's Landing Road would be obliterated from its existing intersection with Pittsburg Landing Road to just west of the Bookstore parking area. The existing Bookstore parking area would also be removed. Approximately 30 meters of new roadway would be constructed between the proposed new alignment of Pittsburg Landing Road and the remaining section of Brown's Landing Road. The parking area along Brown's Landing Road will remain and be milled and overlaid with asphalt pavement.

4. Hagy Field Road

Hagy Field Road is approximately 200 meters in length and provides access between Pittsburg Landing Road and Corinth-Pittsburg Landing Road. The Park would like to designate this surface treated roadway as the beginning point of the Park's Tour Route. Improvements would include some minor widening of the roadway and realignment in order to facilitate two-way traffic, remove some of the curves, and improve sight distance at the intersections and along the route. The roadway would also be overlaid with asphalt pavement.

5. Corinth-Pittsburg Landing Road

The concrete slabs along Corinth-Pittsburg Landing Road between Hagy Field Road and the proposed new alignment of Pittsburg Landing Road would be removed and the roadway would be converted to a Historic Trace. The reinforced Portland cement concrete (RPCC) on Corinth-Pittsburg Landing Road between Hagy Field Road and Reconnoitering Road would be rehabilitated. The work would include cleaning and sealing the transverse and longitudinal joints, and repairing the transverse cracks. It is estimated that approximately 356 concrete slabs would be removed along the route and 270 concrete slabs would be replaced. The difference is primarily due to the proposed realignment work and the removal of slabs along the section proposed to be converted to a Historic Trace.

6. Sherman Road

Improvements include overlaying Sherman Road with asphalt pavement along the entire route with the exception of a short section to be relocated onto the historic roadway alignment. Approximately 250 meters of new roadway and two bus-pull-offs would be constructed along the original alignment of Sherman Road. The existing portion of the Sherman Road alignment (approximately 500 meters) that curves up to the Confederate Burial Trench would be converted to a paved walking trail.

7. Reconnoitering Road

Improvements proposed for Reconnoitering Road include asphalt pavement overlay and miscellaneous drainage repairs. The drainage repairs include culvert replacements and ditch regrading. An existing bridge on Reconnoitering Road is proposed to be replaced with a bottomless structural plate culvert which would accommodate a travel lane and a pedestrian and bike sidewalk.

8. Eastern Corinth Road

The intersection of Eastern Corinth Road and Peabody Road would be reconfigured to provide a T-intersection. This would allow for less driver confusion and improve the sight distance at the curves. Approximately 80 m of new roadway would be constructed and approximately 260 m of existing pavement would be removed as part of the intersection reconstruction. Approximately 75 m of the roadway would be reconstructed on the existing alignment. The rest of Eastern Corinth Road would be overlaid with asphalt pavement.

C. Need for Proposed Action

Two major needs have been identified. The first is to improve the historical accuracy of the Park's roadway system through the realignment of some routes. These realignments would closely resemble those depicted on the Historical Base Map of April 6-7, 1862. Many of the historic traces (subbase) are still present in the Park and easily identifiable to the naked eye.

The second need is to improve the overall condition of, and the safety concerns associated with, the Park's roadways and structures. Definite beginning and ending points to the Tour Route are needed to improve visitor access and reduce driver confusion. The selected roadways have been grouped together because they readily function and interact with each other to make up the Park's Tour Route. In addition, management operations, time, and costs associated with design and construction, are usually significantly less when improvements are combined than if the improvements are performed as separate actions.

Several of the roadways do not meet current roadway design and safety standards, particularly at some of the roadway intersections. In August of 1996 and 1999, the Federal Highway Administration conducted pavement condition surveys in accordance with the "Distress Identification Manual for the Long-Term Pavement Performance Project (SHRO-P-338)". The findings for each site are described below.

1. Pittsburg Landing Road

The pavement generally contains low to moderate fatigue cracking at a few locations within the roadway.

2. Visitor Center and Cemetery Parking Areas

The pavement generally contains low to moderate severity fatigue and longitudinal cracking at a few locations within the parking area.

3. Welker Battery Road

This route has also been identified as the Park Maintenance Road. Improvements are primarily related to the reconfiguration of the this roadways intersection with Pittsburg Landing Road.

4. Brown's Landing Road

The pavement generally contains low to moderate severity fatigue and longitudinal cracking at a few locations between the intersection of Brown's Landing and Eastern Corinth roads and the Indian Mounds palisades. The pavement width does not meet current design standards for two-way traffic.

5. Hagy Field Road

The pavement contains several 25 to 75 mm deep ruts and settlement. Measuring less than 5 m in width, it does not meet current roadway standards for two-way traffic and would need some minor realignment in order to improve sight distance along the route and at the intersections.

Typical View of Hagy Field Road

6. Corinth-Pittsburg Landing Road

Corinth-Pittsburg Landing Road consists of approximately 862 reinforced Portland cement concrete (RPCC) slabs typically 12.2 m long by 3.0 m wide. Low to high severity transverse and longitudinal cracks, corner breaks, spalling and blow outs were observed within 33% of the RPCC slabs and slab joints.

View of Corinth-Pittsburg Landing Road.

7. Sherman Road

The section of Sherman Road that leads to the Confederate Burial Trench consists of a narrow paved roadway that contains many curves. The pavement contains moderate cracking throughout.

8. Reconnoitering Road

The pavement generally contains minimal low severity fatigue and longitudinal cracking.

View of Reconnoitering Road Bridge showing erosion and scour. Railing does not meet safety standards. Concrete is spalling.

8. Eastern Corinth Road

The pavement generally contains low to high severity fatigue and longitudinal cracking. Some areas contain high severity traverse and block cracking, raveling, ruts, and potholes.

Typical Pavement Cracking along Eastern Corinth Road.

9. Peabody Road

The pavement generally contains low severity fatigue cracking at a few locations. The intersection of Peabody Road with E. Corinth Road is a major concern of the Park, consisting of two fork intersections that often confuse drivers.

The report goes on the provide roadway rehabilitation recommendations. The proposed Build Alternative is consistent with these recommendations.

D. Decisions to be Made

The National Environmental Policy Act of 1969 (NEPA) requires consideration of the environmental effects of proposed Federal actions. This Environmental Assessment (EA) provides the required environmental, socioeconomic analysis for the proposed work. As part of the planning and analysis, this EA has been prepared to evaluate alternatives and options for accomplishing this work with the least impact to Park resources and Park visitors. The Eastern Federal Lands Highway Division of the Federal Highway Administration has prepared this EA for the National Park Service.

The National Park Service intends to explore alternatives for performing needed rehabilitation improvements to several Park roads, intersections, parking areas, and drainage structures, without diminishing the visitor experience, the interpretive value and importance of the Shiloh National Military Park, or Park resources. After the alternatives have been fully evaluated and the public has had an opportunity to review and provide comment on the proposed action, the National Park Service will issue a decision on how they will proceed.

Coordination with the US Fish and Wildlife Service (USFWS) and the Tennessee State Historic Preservation Officer (SHPO) must be complete before a decision is made.

E. Scoping and Issues

Issues and concerns related to roadway rehabilitation and construction were identified by Park, State and other Federal agencies, and through similar NPS road projects. These issues are specific to historic and commemorative elements, prehistoric cultural resources, as well as water quality and special status species (threatened, endangered, species of concern, and designated critical habitats).

F. Issues Evaluated in Detail

Specific impact topics were developed to address potential natural, cultural, and social impacts that might result from the construction. These topics are derived from the issues identified above and address federal laws, regulations and orders, Shiloh National Military Park management documents, and NPS knowledge of limited or easily impacted resources. They are used to focus the information presented and discussed in the affected environment and environmental consequences sections. A brief rationale for the selection of each impact topic is given below.

1. Special Status Species

Section 7 of the Endangered Species Act directs all Federal agencies to use their authority in furtherance of the purposes of the Act by carrying out programs for the conservation of rare, threatened, and endangered species. Federal agencies are required to consult with the U. S. Fish and Wildlife Service (FWS) to ensure that any actions authorized, funded, and/or carried out by the agency does not jeopardize the continued existence of any listed species or critical habitat. Protection and preservation of special status species at the Park are of critical importance and will be discussed as part of this analysis.

2. Water Quality

NPS Management Policies (1988) require protection of water quality consistent with the Clean Water Act. Since the proposed action involves work in or adjacent to streams, it has the potential to impact water quality. This issue will be discussed further in the document.

3. Wetlands

Executive Order 11990 (Protection of Wetlands) requires an examination of impacts to wetlands. Using vegetation, soils, and hydrology as evidence of wetland characteristics, NPS personnel have stated that no wetlands are located within the project area.

4. Cultural Resources

The National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969 (NEPA), the 1916 NPS Organic Act, NPS Management Policies, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. The proposed project has the potential to affect prehistoric and historic archeological resources, and features of the Park's cultural landscape. Protection and preservation of cultural resources at the Park are of critical importance and will be discussed as part of this analysis.

The FHWA and the NPS, in consultation with the Tennessee State Historic Preservation Officer, has determined that the Shiloh National Military Park meets the criteria of eligibility for the National Register of Historic Places. In addition, the setting of the Shiloh National Military Park is managed to ensure that Park visitors are afforded a serene and informational travel experience, highlighted by the historic and natural rural landscapes characteristic of the Park. Perpetuation of these aesthetic characteristics of the Park's cultural landscape is an important design consideration of the current project. Therefore, in accordance with 36 CFR 800, an assessment is required of the effect that the construction would have on the Park and other potential cultural resources in the project area.

G. **Definitions**

1. Temporary impacts - Impacts anticipated occurring during construction only. Upon completion of the construction activities, conditions are likely to return to those that existed prior to construction.

2. Short-term impacts - Impacts that may extend past the construction period, but are not anticipated lasting more than a couple years.

3. Long-term impacts - Impacts that may extend past the construction period, and are anticipated lasting more than a couple of years.

4. Negligible - Little or no impact (not measurable).

5. Minor - Changes or disruptions may occur, but does not result in a substantial resource impact.

6. Major - Easily defined and measurable. Results in a substantial resource impact.

H. **Permits**

The U.S. Army Corps of Engineers has regulated activities in the nation's waters since 1890. Until the 1960's, the primary purpose of the regulatory program was to protect navigation. Since then, as a result of laws and court decisions, the program has been broadened to encompass the full public interest for both the protection and utilization of water resources. Regulatory authority and responsibilities of the Corps of Engineers includes Section 404 of the Clean Water Act (33 USC 1344). This includes regulation of the discharge of dredged material into waters of the United States, including both navigable waters and adjacent wetlands. In addition, Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) is regulated by the

Corps of Engineers for activities in or affecting navigable waters. Since the actions proposed will impact waters which are considered waters of the United States, the proposed action is subject to U.S. Army Corps of Engineers review under the 404 regulatory program.

The FHWA and the NPS are responsible for obtaining TVA approval under Section 26 a of the TVA Act. In addition to other provisions of its approval, TVA would require the NPS to employ best management practices to control erosion and sedimentation, as necessary, to prevent adverse aquatic impacts.

The U.S. Fish and Wildlife Service (FWS) will be consulted regarding the presence of Federally listed threatened or endangered species within the study area. If any such species is known to inhabit the area, appropriate measures will be developed to protect the species from harm.

A development permit may be required from Hardin County, since Hardin County is now a participant in the Federal Emergency Management Agency (FEMA) flood insurance program.

II. Alternatives

A. Description of Alternatives

The following is a description of the proposed alternatives to rehabilitate several Park roads, intersections, parking areas, and drainage structures within the Shiloh National Military Park, Hardin County, Tennessee

1. No Action Alternative

Under the No Action alternative, no substantial improvements will be performed other than in accordance with routine maintenance operations. The existing safety concerns will not be addressed. None of the existing roadways or parking areas would be realigned or reconfigured.

2. Build Alternative (Preferred Alternative)

The build alternative proposes to rehabilitate several Park roads, intersections, parking areas, and drainage structures. See attached construction plans for more detail. This work will include performing the following improvements at the specified locations:

a. Pittsburg Landing Road

Pittsburg Landing Road will be overlaid with asphalt pavement from the Park entrance at TN Route 22 to just east of Chambers Field. Beginning east of Chambers Field and terminating near the front gate of the cemetery the roadway would be relocated. Approximately 380 meters of new roadway would be constructed along the old roadway alignment that is still present today. This realignment would streamline the numerous roadway crossings present just west of the visitor center parking area. This realignment would also result in the removal of approximately 350 meters of pavement from the existing Pittsburg Landing Road, which would be returned to green space.

View of old roadbed and proposed new alignment.

The existing main visitor center and cemetery parking areas would be slightly reconfigured and reconstructed to accommodate a few additional automobile and recreational vehicle stalls within the existing parking area dimensions, and to facilitate improved driver movement.

b. Welker Battery Road

The maintenance service road (Welker Battery Road) would be extended from the existing Pittsburg Landing Road alignment to the proposed new alignment as part of the intersection reconstruction. The roadway will be extended approximately 40 meters through an existing clearing.

c. Brown's Landing Road

Approximately 150 meters of the existing Brown's Landing Road would be obliterated from its existing intersection with Pittsburg Landing Road to just west of the Bookstore parking area. The existing Bookstore parking area would also be removed. Approximately 30 meters of new roadway would be constructed between the proposed new alignment of Pittsburg Landing Road and the remaining section of Brown's Landing Road. The parking area along Brown's Landing Road will remain and be milled and overlaid with asphalt pavement.

d. Hagy Field Road

Hagy Field Road is approximately 200 meters in length and provides access between Pittsburg Landing Road and Corinth-Pittsburg Landing Road. The Park would like to designate this surface treated roadway as the beginning point of the Park's Tour Route. Improvements would include some minor widening of the roadway and realignment in order to facilitate two-way traffic, remove some of the curves, and improve sight distance at the intersections and along the route. The roadway would also be overlaid with asphalt pavement.

e. Corinth-Pittsburg Landing Road

The concrete slabs along Corinth-Pittsburg Landing Road between Hagy Field Road and the proposed new alignment of Pittsburg Landing Road would be removed and the roadway would be converted to a Historic Trace. The reinforced Portland cement concrete (RPCC) on Corinth-Pittsburg Landing Road between Hagy Field Road and Reconnoitering Road would be rehabilitated. The work would include cleaning and sealing the transverse and

longitudinal joints, and repairing the transverse cracks. It is estimated that approximately 356 concrete slabs would be removed along the route and 270 concrete slabs would be replaced. The difference is primarily due to the proposed realignment work and the removal of slabs along the section proposed for conversion to a Historic Trace.

f. Sherman Road

Sherman Road would be overlaid with asphalt pavement along the entire route with the exception of a short section to be relocated onto the historic roadway alignment. Approximately 250 meters of new roadway and two bus-pull-offs would be constructed along the original alignment of Sherman Road. The portion of the existing Sherman Road alignment (approximately 500 meters) that curves up to the Confederate Burial Trench would be converted to a paved walking trail.

View of old roadbed and approximate limits of realigned Sherman Road.

g. Reconnoitering Road

Improvements proposed for Reconnoitering Road include asphalt pavement overlay and miscellaneous drainage repairs. The drainage repairs include culvert replacements and ditch regrading. An existing bridge on Reconnoitering Road is proposed to be replaced with a bottomless structural plate culvert which would accommodate a travel lane and a pedestrian and bike sidewalk. In order to make the new culvert on Reconnoitering Road blend in with the Park's cultural and natural environment, the new structure will have stone masonry facing designed to match with other structures in the Park. (See photo below)

h. Eastern Corinth Road

The intersection of Eastern Corinth Road and Peabody Road would be reconfigured to provide a T-intersection. This would allow for less driver confusion and improve the sight distance at the curves. Approximately 80 meters of new roadway would be constructed and approximately 260 meters of existing pavement would be removed as part of the intersection reconstruction. Approximately 75 meters of the roadway would be reconstructed on the existing alignment. The rest of Eastern Corinth Road would be overlaid with asphalt pavement.

i. Impact Summary of the Build Alternative

Roadway Name	**Length of Disturbance (meters)**	**Roadway Excavation (m^3)**	**Embankment Construction (m^3)**
Pittsburg Landing Road	1800.3	324	1432
Welker Battery Road	81.3	101	88
Brown's Landing Road	140.1	77	30
Hagy Field Road	254.8	660	184
Corinth-Pittsburg Landing Road	4763.2	0	0
Corinth-Pittsburg Landing Road (Historic Trace)	360	386	97
Sherman Road	413	346	22
Reconnoitering Road	1244.6	0	0
Peabody Road	592.0	0	0
Eastern Corinth Road	1064.7	211	107
Approximate Total Quantity	**10714**	**2105**	**1960**

B. Comparison of Alternatives

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Preferred Alternative as they relate to the environment.

Factor	No Action Alternative	Build Alternative
Wetlands	No impact to wetlands.	No impact to wetlands.
Vegetation	No impacts to vegetation will occur.	Some vegetation removal and clearing will occur in areas proposed for realignment. Obliterated areas will be reseeded and allowed to return to natural conditions.
Protected Species	No impact to threatened or endangered species.	No impact to threatened or endangered species is anticipated.
Air Quality	No change from the existing conditions is anticipated.	Minor temporary impacts may occur during construction.
Soils/Geology	No change from the existing conditions.	Some earth disturbance will be required to perform the roadway realignments and reconstruction activities. No major or long-term adverse impacts are anticipated.
Water Quality	No change from the existing conditions.	Minor temporary impacts may occur during construction due to erosion and sediment run-off. However, these impacted will be mitigated through the development and implementation of a sediment and erosion control plan which utilizes best management practices.
Birds, Fish & Wildlife	No impacts to birds, fish and wildlife are anticipated.	No impacts to birds, fish and wildlife are anticipated.
Cultural Resources	No change from the existing conditions.	Potential adverse impacts have been mitigated through archeological investigations and data recovery.
Noise	No change from the existing conditions.	Temporary increases in noise levels may occur during construction.
Visitor Use and Recreation	Safety concerns will remain. Deterioration of roadways will continue to occur. No enhancement of the visitor experience.	Temporary disruptions and impacts during construction. Improved conditions after construction.
Transportation	No change from the existing conditions.	Improved intersection safety and driving conditions. Fewer turning movements. Defined beginning and ending points to the Park Tour Route.
Socio-Economics	No change from existing conditions.	No change from existing conditions.
Cumulative Impacts	No cumulative impacts occur as a result of the No Action Alternative.	Cumulative impacts are anticipated to be minor given the limited extent of the proposed work..

III Affected Environment

A. General Environmental Setting

Shiloh National Military Park consists of approximately 3,973 acres in Hardin County, Tennessee. The Park is located on the west bank of the Tennessee River about nine miles south of Savannah, Tennessee. The project area is located in southwest Tennessee, in a rural setting with primarily an agricultural landscape.

In Hardin County, the summers are hot and the winters are mild. Rainfall is generally abundant, falling about one day in three throughout the year. Annual precipitation averages about 55 inches, although recorded levels have been as low as 36 inches and as much as 75 inches. Severe thunderstorms are infrequent, tropical storms are rare, and blizzards virtually nonexistent.

B. Natural Resources

1. Vegetation

A mixed hardwood forest covers more than two-thirds of the 3972.87-acre Park. The forest and fields remain today much as they were at the time of the 1862 battle. Lawn areas around buildings, roadways, and other features are mowed to provide a manicured and more aesthetically pleasing appearance. Woodland species types change with the terrain from an upland oak forest containing a variety of oaks, hickories, elm, walnut, red cedar, and short leaf pine, transitioning though ravines filled with mixed hardwood forest consisting principally of sweetgum, sycamore, tulip poplar, and basswood, to a bottomland hardwood consisting of cherrybark oak, sweetgum, cottonwood, and river birch. The understory, particularly near forest openings, is thick with redbud, honeysuckle, poison ivy, and Virginia creeper.

2. Threatened and Endangered Species

Although no endangered plant species are known to inhabit the Park, a 1994 inventory of the lichens of Shiloh National Military Park verified the existence of a rare, endemic species of lichen (Pertusaria valliculata) in the vicinity of the Park.

The Park lies within the published geographic range of several threatened and endangered species; including the Indiana bat and the gray bat. Experts believe the bats may be using the Park as a foraging area and a nursery during the warm weather months from April to October. The habitat utilized by these two endangered species is in forested riparian areas along streams and rivers. The bats utilize trees with loose bark such as shagbark hickory and white oak for nursing their young. The nursery

trees will often have a colony of nursing bats beneath their bark. USFWS records indicate that seven different species of endangered mussels have historically been found to reside within the Tennessee River adjacent to the Park boundary. Bald eagles winter along the river and may be found in the vicinity of the Park during others times of the year. No nesting activity by eagles has been reported in the vicinity of the Park.

3. Birds, Fish, and Wildlife

A diverse group of animals are found in the Park, including at least 45 species of mammals, 40 species of reptiles, and 27 species of amphibians. At least 148 species of birds have been identified as residents or at least seasonal visitors. Food and cover for wildlife is plentiful.

The reach of the upper Kentucky Lake adjacent to Shiloh National Military Park supports a diverse aquatic community unparalleled in the Tennessee River including numerous fish and freshwater mussel species. For many years, the area has been the focus of intensive commercial fishing and musseling activity. The recreational fishery in this section of the Tennessee River is also highly developed and reaches seasonal activity peaks in response to concentrations of certain species during their annual spawning periods. Winter fishing activity concentrates on sauger that congregate below Pickwick Dam. White bass, striped bass, rockfish/ white bass hybrids, and white crappie are caught through the spring months, while black bass, and other centrarchids dominate the creel in the summer. Commercial fishermen concentrate on buffalo, carp, paddlefish, and several species of catfish. Commercial musseling is about equally distributed between brailing and diving. The major commercial shell taken is the ebony shell, although a number of other species are also taken including pigtoes. The Tennessee Wildlife Resources Agency has established a mussel sanctuary between Pickwick Dam (Mile 206.7) and Mile 201.9 to protect numerous threatened and endangered mussel species known to inhabit this reach.

4. Wetlands

There were no wetlands found within the study area. However, one tributary stream is present and may be impacted by the proposed action. Currently a small bridge carries Reconnoitering Road over the stream. If any work is proposed to occur within this stream, a permit from the Army Corps of Engineers will be required.

C. **Physical Environment**

1. Air Quality

Hardin County has been determined by the Environmental Protection Agency (EPA) to be an attainment area for purposes of the Clean Air Act, i.e., pollution levels are below *de minimis* levels established by the EPA.

2. Water Quality/Hydrology

Bounded on the east by the Tennessee River, the battlefield is an undulating tableland ranging from 360 to 600 feet above mean sea level (msl) in elevation. The river's normal water elevation is about 362 msl and is somewhat regulated by the Kentucky Dam, 200 miles downstream, and by Pickwick Dam, nine miles upstream. River bluffs tower more than 100 feet above the river.

Water quality in the Tennessee River is generally good. According to *The Status of Water Quality in Tennessee 1996 305(b) Report*, published by the Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Kentucky Lake is considered fully supporting of designated uses. Designated uses include fish and aquatic life, recreation, domestic water supply, irrigation, livestock watering and wildlife, and navigation. The report goes on to state that the water directly below Pickwick Lock and Dam (approximately eight (8) miles upstream from the Park) is considered threatened by poor quality water released by the dam. The water quality concerns center around low dissolved oxygen due to high biological oxygen demand in the deep, slow moving portions of lower Pickwick Lake. Within the eight-mile reach between Pickwick Dam and the Park, this condition is generally corrected. Despite periodic episodes of lowered dissolved oxygen, diverse communities of sedentary freshwater mussels (a biological indicator of water quality) are present in good numbers, including at least six endangered species.

3. Soils/Geology

The Park is situated on a plateau in the shape of an irregular triangle with three and four mile long sides. Located within the Gulf Coastal Plain physiographic province, the region soils are younger than in other physiographic regions in the country. The majority of the site is underlain by high-level alluvial deposits which consist of iron stained gravel, sand, silt, and clay; variable in thickness but generally less than 18 m thick. Alluvial deposits and the Coffee Sand formations underlie the site in the flood plain areas parallel to the Tennessee River. The alluvial deposits consist of sand, silt, clay and gravel and range in thickness between 6 m to more than 30 m. The Coffee Sand formation consists of loose fine-grained sand, light gray, glauconitic, micaceous; interbedded with laminated lignitic clay. The thickness of the Coffee Sand formation varies between 7 m and 61 m.

The majority of the near-surface soils at the site are of the Paden-Pickwick-Waynesboro association. This association consists of moderately well drained soils and well-drained soils on high terraces. Paden and Pickwick soil series make up about 70 percent of the association. The surface layer is loam and silt loam. The subsoil is chiefly silty clay loam and clay loam. The Waynesboro series consists of fine sandy loam and gravelly sandy loam. The near-surface soils adjacent to the Tennessee River are of the Wolflever-Beason-Egam association. This association consists of nearly level soils on low stream terraces and flood plains of the Tennessee River. The surface layer consists of dark grayish-brown to brown silt loam and varies in depth between 0.45 and 0.8 m. The substratum is brown or yellowish-brown silt loam with varying amounts of chert.

Stream channels are not stabilized in all places, and the streams are still laying down deposits. Many areas consist of poorly drained and swampy land. Upland areas are undulating to steep, easily erodible, and contain a fragipan.

4. Noise

The area is mostly serene and tranquil with the majority of noise being generated by commercial and recreational traffic on the Tennessee River. Vehicular traffic is also a major contributor to noise within the Park.

D. Socio-Economic Environment

The project site is entirely on National Park Service property; however, the primary industries outside of the Park are agriculture, forestry, or small businesses related to farming or tourist services. Smaller farms generally occupy upland areas, and larger farms are found on the broad flood plain of the Tennessee River. Principal crops are corn, cotton, soybeans, and small grains. Hardin County is a typical Southwest Tennessee rural county. It has only one population concentration, Savannah, about six miles to the northeast of the Park. Census data for 1990 shows a Hardin County population of 22,633: 21 percent urban, 79 percent rural. More than 20 percent of households were below the poverty level. Although slightly more than fifty percent of high school students graduate, only about five percent graduate from college. Many farmers depend on employment in local industries for part of their income. The Tennessee River, which meanders through the county, supports barge transportation.

The NPS charges visitors a fee for entering the Park, which assists in generating some revenue for Park maintenance operations and other activities.

E. Cultural Resources

Shiloh National Military Park was established in1894 to preserve the scene of the first major battle in the Western theater of the Civil War. The two-day battle, April 6 and 7, 1862, involved about 65,000 Union and 44,000 Confederate troops. This battle resulted in nearly 24,000 killed, wounded, and missing. It proved to be a decisive victory for the federal forces when they advanced on and seized control of the Confederate railway system at Corinth, Mississippi.

Shiloh National Military Park is an established tourist attraction providing over one-half million annual visitors with a tranquil, historically accurate memorial marked by 151 monuments, 217 cannon, and over 450 historic plaques. With a landscape much the same as in 1862, the Park offers an interpretation of the battle through facilities at the Visitor Center and by a nine-mile self-guided tour of the battlefield.

1. Archeological Resources

The historic significance of the Park is reflected primarily in historic resources relating to and commemorating the Civil War Battle of Shiloh and in prehistoric archaeological resources represented most prominently by the Shiloh Indian Mounds (site 40Hr7).

The earliest archaeological investigations of the Shiloh Indian Mounds were performed around the turn of the century by Col. Cornelius Cadle and, some sixteen years later, by C. B. Moore (1915). More extensive investigations were initiated in 1933 and 1934 by Dr. Frank H. Roberts Jr., of the Smithsonian Institution, as a project of the Civil Works Administration. More recently the mound area was investigated in 1976 by John W. Walker of the Southeast Archaeological Center (SEAC) and by Gerald Smith of Memphis State University under contract to the National Park Service (1975). In 1979, Christine Beditz of SEAC further examined Mound A. John Ehrenhard for the SEAC completed a Preliminary Cultural Resource Management Plan for the Shiloh Mounds in 1981.

Since prehistoric times, the Tennessee River has served as a major transportation route through the area. Artifacts from the Late Woodland Period, dated circa 300 - 400 A.D., discovered at the Shiloh Mounds site point to early human occupation of the site. Shiloh's Mound C may represent a Woodland Period burial mound. The other mounds appear to have been constructed during the Mississippian Period between 1000 A.D. and 1100 A.D.

The Shiloh Indian Mounds were determined to be eligible for listing on the National Register of Historic Places on December 22, 1978. The site was officially listed on the National Register on March 27, 1979. On May 5, 1989, the Shiloh Indian Mounds were designated as a National Historic Landmark. The Shiloh Indian Mounds consists of 7 large Indian mounds and well over two dozen lesser mounds representing a late prehistoric Mississippian palisade complex of mounds, village and plaza, and an earlier, Woodland Period component.

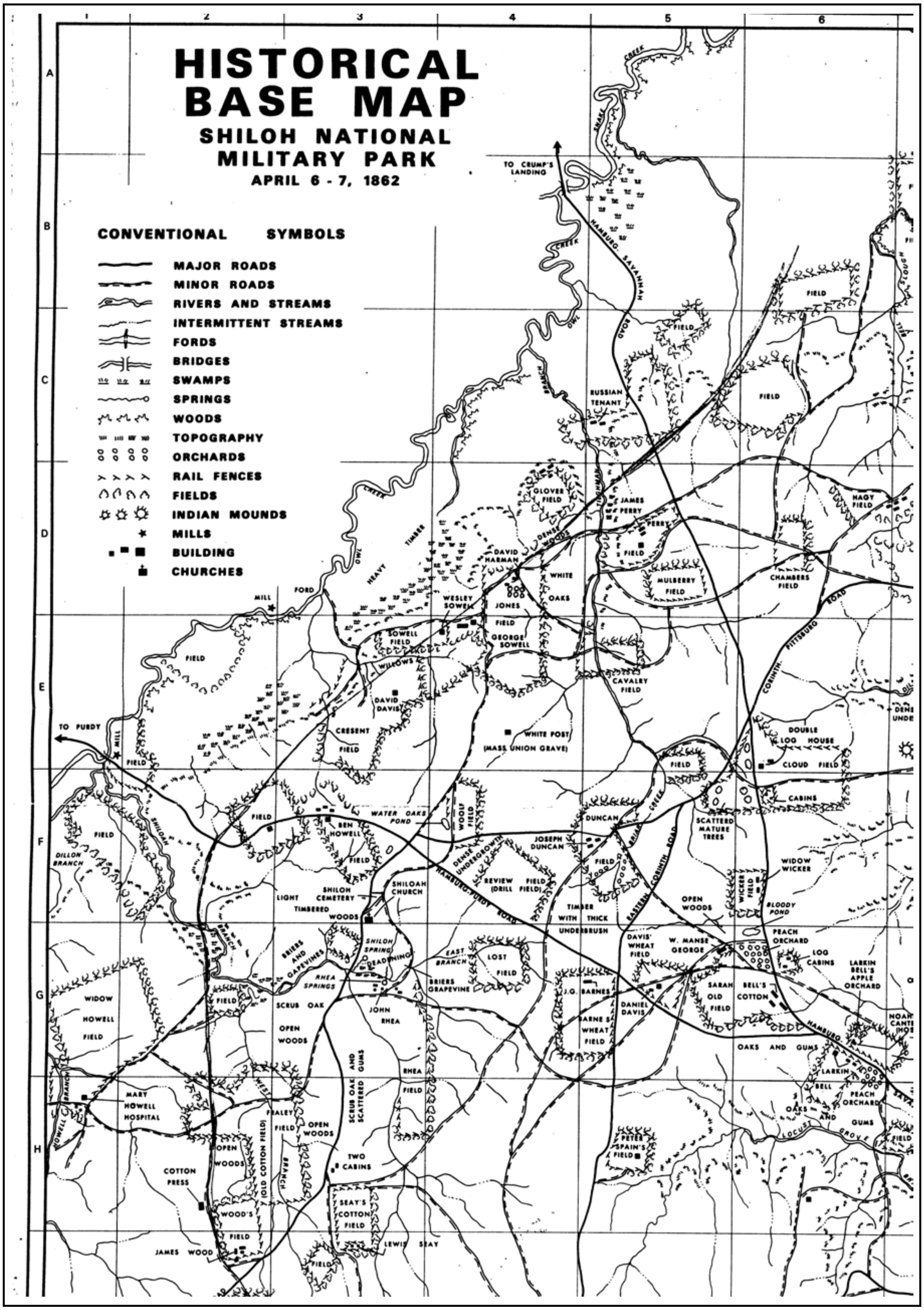
Recently, the Southeast Archeological Center conducted a Phase I/II assessment of the area of potential impacts as required by Section 106 of the National Historic Preservation Act. This survey consisted of shovel testing and systematic metal detecting of the area. A total of 218 shovel tests and 766 metal detecting hits were recovered in this slightly more than 10-acre area. Only 37 shovel tests contained cultural material and only one (.005%) produced any Civil War related artifacts. Of the 766 metal detecting hits 541 (71%) yielded Civil War related artifacts. The survey states, "With the exception of the McClernand Road location, all areas were either shown to be devoid of significant cultural resources or the systematic metal detecting and recovery mitigated the adverse impacts to the resources." As a result of this finding McClernand Road has been eliminated from the study area.

2. Historic Resources

The first western battle between the Union and Confederate soldiers took place at Shiloh National Military Park. The battle took place from April 6 to the 7 in 1862 and resulted in the injury and loss of 24,000 men. Although both sides suffered dramatic losses, the Union side came out victorious. The confrontation between the two sides gave indication to how gruesome and long the war was going to be.

The battlefield contains about 4,000 acres and has within its boundaries the Shiloh National Cemetery along with the well-preserved prehistoric Indian mounds that are listed as a historic landmark. The NPS recognizes a total of 203 significant historic/prehistoric structures and features within the Park. Of these, 184 structures relate to the Battle of Shiloh, including standing buildings, roads, the National Cemetery, a defensive earthwork, Confederate burial trenches, and numerous monuments.

For the most part, the roadway system within the Park is very similar to that which existed during the time of the battle; however over the years some changes to the roadway alignments were made. The roadway alignments as they existed on April 6 - 7, 1862 are depicted in the map below.


HISTORICAL BASE MAP
SHILOH NATIONAL MILITARY PARK
APRIL 6 - 7, 1862
CONVENTIONAL SYMBOLS
MAJOR ROADS
MINOR ROADS
RIVERS AND STREAMS
INTERMITTENT STREAMS
FORDS
BRIDGES
SWAMPS
SPRINGS
WOODS
TOPOGRAPHY
ORCHARDS
RAIL FENCES
FIELDS
INDIAN MOUNDS
MILLS
BUILDING
CHURCHES
TO CRUMP'S LANDING
HAMBURG - SAVANNAH ROAD
RUSSIAN TENANT
GLOVER FIELD
JAMES PERRY
PERRY FIELD
MULBERRY FIELD
CHAMBERS FIELD
HAGY FIELD
DAVID HARMAN
WHITE OAKS
WESLEY SOWELL
JONES FIELD
GEORGE SOWELL
SOWELL FIELD
WILLOWS
HEAVY TIMBER
MILL
FORD
FIELD
TO PURDY
DAVID DAVIS
CRESENT FIELD
WHITE POST (MASS UNION GRAVE)
CAVALRY FIELD
CORINTH - PITTSBURG ROAD
DOUBLE LOG HOUSE
CLOUD FIELD
CABINS
SCATTERED MATURE TREES
WATER OAKS POND
BEN HOWELL
WOOLF FIELD
DUNCAN
JOSEPH DUNCAN
DENSE UNDERGROWTH
REVIEW FIELD (DRILL FIELD)
EASTERN CORINTH ROAD
WIDOW WICKER
WICKER FIELD
BLOODY POND
OPEN WOODS
TIMBER WITH THICK UNDERBRUSH
DILLON BRANCH
LIGHT TIMBERED WOODS
SHILOH CEMETERY
SHILOH CHURCH
HAMBURG - PURDY ROAD
PEACH ORCHARD
DAVIS' WHEAT FIELD
W. MANSE GEORGE
LOG CABINS
LARKIN BELL'S APPLE ORCHARD
BRIERS AND GAPEVINES
SHILOH SPRING
RHEA SPRINGS
EAST BRANCH
LOST FIELD
BRIERS GRAPEVINE
J.G. BARNES
DANIEL DAVIS
BARNES WHEAT FIELD
SARAH BELL'S OLD COTTON FIELD
WIDOW HOWELL FIELD
SCRUB OAK
JOHN RHEA
OPEN WOODS
OAKS AND GUMS
SCRUB OAK AND SCATTERED GUMS
RHEA FIELD
LARKIN BELL
PEACH ORCHARD
OAKS AND GUMS
MARY HOWELL HOSPITAL
FRALEY FIELD
OPEN WOODS
OLD COTTON FIELD
LOCUST GROVE
PETER SPAIN'S FIELD
COTTON PRESS
TWO CABINS
SEAY'S COTTON FIELD
WOOD'S FIELD
JAMES WOOD
LEWIS SEAY
FIELD

3. Tribal Resources

It is not anticipated that tribal resources would be encountered. Coordination with applicable tribal nations has been initiated and none of the tribes expressed an interest in formal consultation. However, if resources are uncovered during excavation operations, work will be halted immediately and the tribal nations will be notified.

F. Visitor Use and Experience

The Park is open daily from 8:00 am to dusk all year long, except for December 25. The peak visitation season runs from April through Labor Day. In 1999, the total number of recreational visits to the Park was approximately 357,532.

Shiloh National Military Park provides opportunities for recreational activities such as auto touring, biking, and hiking. The Visitor Center offers an orientation film and museum exhibits. The auto-tour is self-guided and contains fourteen wayside exhibits.

Typical View of the Visitor Center and Parking Area

IV. Environmental Effects

This section forms the scientific and analytical basis for comparison of the alternatives discussed in Section III, and describes the probable consequences (impacts and effects) of each alternative on selected environmental resources. The following impacts were derived and quantified through numerous field reviews, preliminary design efforts, and coordination with applicable resource agencies.

A. General Environmental Setting

1. No Action Alternative

No change from the existing conditions is anticipated.

2. Build Alternative

Some change in the Park layout will result from the roadway realignments and improved road conditions. Some areas currently occupied as green space will be lost, but new green space will be created in sections where the existing roadway is being obliterated.

3. Conclusions

Minor impacts to the general environmental setting are anticipated under the Build Alternative, however these impacts are expected to benefit the Park through improved visitor access and safety. The No Action alternative will have no impact on the general environmental setting. No impairment to the Park's general environmental setting would occur.

B. Natural Resources

1. Vegetation

a. No Action Alternative

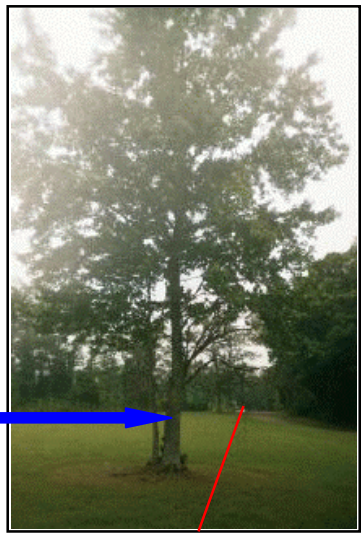
The existing species abundance would remain relatively the same.

b. Build Alternative

The shoulders along Hagy Field Road are heavily vegetated and will require some removal of trees and low-lying vegetation in order to widen and realign the roadway.

View of Hagy Field Road.

The intersection improvements at Eastern Corinth Road and Peabody Road will require the removal of one tree approximately 300 mm in diameter. See photos below.



As part of the Visitor Center Parking Area reconfiguration, one tree approximately 300 mm in diameter would be removed in order to accommodate the bus parking spaces. See photo below.

Green space, in areas where other roadways are to be realigned, would be impacted; however, the obliterated pavement sections will be revegetated with native species and permitted to return to a natural environment. The area of obliterated pavement is anticipated to be equal to or greater than the area being proposed for new construction. Every effort to minimize disturbance for woody and turf vegetation will be made. This vegetation is in abundance around the Park, therefore the effect would be minimal, and animals would still be able to acquire food and shelter from the vegetation elsewhere in the Park. Preventive erosion control measures would be taken to help the growth of future vegetation.

Preliminary quantity computations estimate that the entire project as proposed will involve approximately 2.2 hectares of clearing and grubbing work, the removal of 15 individual stumps, furnishing and placing topsoil for 20,000 m^2, and 2.0 hectares of turf establishment.

c. Conclusions

Neither alternative will have a significant effect on the amount of vegetation present within the Park; however the Build Alternative would have some impact due to the fact that some mature trees would be removed. The removal of trees will be minimized to those only necessary to complete the proposed action. No impairment to the Park's vegetation would occur.

2. Threatened and Endangered Species

a. No Action Alternative

No impact to threatened or endangered species is anticipated.

b. Build Alternative

The Build Alternative will result in some loss of roosting habitat for the gray bat and Indiana bat. This loss may be minimized through the implementation of mitigation measures recommended by the US FWS.

It is anticipated that no trees suitable for nesting will be lost due to construction. However, as a precaution, tree removal would occur after the nesting season (September 15 - March 31) when the bats are no longer present.

c. Conclusions

Threatened or endangered species will remain unaffected with the no build alternative. Taking appropriate preventive measures would minimize any affects caused by construction. No impairment to threatened or endangered species within the Park would occur.

3. Birds, Fish and Wildlife

a. No Action Alternative

There would be no additional impacts to wildlife species and aquatic habitats associated with this alternative.

b. Build Alternative

Wildlife may be adversely affected during construction due to increased noise levels, and the loss of some vegetated areas. However, once construction is complete noise levels will resume to previous levels, and greater areas of vegetation will be made available for wildlife. Most of the construction consists of realignment and rehabilitation of roads. Previous areas where roads once existed will be able to support growth for new vegetation, and is some cases, the new area exposed for vegetation will be greater than the previous area.

c. Conclusions

The No Action Alternative does not affect birds and other wildlife. Under the Build Alternative any negative affects caused by construction will be temporary and will cause no significant damage in the future. No impairment to the Park's birds, fish, or wildlife would occur.

4. Wetlands

a. No Action Alternative

This alternative would have no impacts on wetlands within the study area.

b. Build Alternative

There are no wetlands within the study area to be affected; however, Reconnoitering Road is carried over a small stream by a bridge proposed for replacement. Some work will occur in the stream in order to replace the bridge with a bottomless arch culvert. No permanent encroachment in the stream is anticipated. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, will be prepared by the Federal Highway Administration and included in the final construction plans.

c. Conclusions

Under either alternative, there will be no impact to wetlands. Under the Build Alternative, minor temporary impacts to the small stream that passes under Reconnoitering Road may be impacted during construction. A Section 404 permit from the U.S. Army Corps of Engineers would need to be obtained for this work prior to the start of construction. No impairment to the Park's wetlands would occur.

C. Physical Environment

1. Air Quality

a. No Action Alternative

Air quality levels would remain essentially in the same condition as they are under present conditions.

b. Build Alternative

Air quality levels would remain essentially in the same condition as they are under present conditions. The temporary air quality impacts from construction are not expected to be significant. Construction activities would be conducted in accordance with the Federal Highway Administration's *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 1996;* and will require compliance with all applicable local, state, and federal regulations. There are no long-term air quality impacts associated with this alternative.

c. Conclusions

Temporary and minor impacts to air quality may occur under the Build Alternative during construction. No impacts are anticipated under the No Action Alternative. No impairment to the Park's air quality would occur.

2. Water Quality/Hydrology

a. No Action Alternative

No changes from the existing conditions are anticipated.

b. Build Alternative

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize the potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, will be prepared by the Federal Highway Administration and included in the final construction plans.

A number of drainage improvements are included in the proposed Build Alternative. The approximate quantities are summarized in the table below.

Approximate Drainage Quantities for the Build Alternative

Roadway Name	Removal of Inlet	Removal of Pipe Culvert	Install Pipe Culvert	Install Box Culvert	Install Inlet	Install Headwall/ Wingwall
Pittsburg Landing Road	1 ea	65 m	97.8 m		3 ea	4 ea
Welker Battery Road	2 ea	14 m	22.5 m		1 ea	
Brown's Landing Road	2 ea	28.7 m	21.8 m		1 ea	1 ea
Hagy Field Road		20 m	51.2 m		2 ea	3 ea
Corinth-Pittsburg Landing Road		28.5 m	30 m			3 ea
Corinth-Pittsburg Landing Road (Historic Trace)		59 m				
Sherman Road		15.1 m	15.1 m			2 ea
Reconnoitering Road		52 m	72 m	11 m		16 ea
Eastern Corinth Road	1 ea	11 m				
Visitor Center Parking Area	4 ea					
Approximate Total Quantity	**10 ea**	**293.3 m**	**310.4 m**	**11 m**	**7 ea**	**29 ea**

c. Conclusions

Water quality and hydrology would not be affected under the No Action Alternative. Under the Build Alternative, there are potential effects to the water quality. However, these impacts would be minimized with the implementation of a sediment and erosion control plan. The new drainage structures should also improve drainage flow throughout the Park. No impairment to the Park's water quality or hydrology would occur.

3. Soils/Geology

a. No Action Alternative

There will be no change to the regional geology or soils.

b. Build Alternative

Since the proposed construction consists primarily of reconstruction and rehabilitation efforts, there would be no new geology introduced to the Park.

c. Conclusions

Neither alternative will affect the present condition of the soils or geology. No impairment to the Park's soils or geology would occur.

4. Noise

a. No Action Alternative

The No Action Alternative would have no effect on current or future noise levels.

b. Build Alternative

Existing noise levels will temporarily increase during construction. Park visitors, hikers, and wildlife in the immediate vicinity of the project area will be subject to the noise pollution generated from construction.

c. Conclusions

The No Action Alternative maintains current noise levels. Under the Build Alternative noise levels will increase temporarily during construction, but once construction is complete, noise will resume to previous levels. No impairment to the level of noise within the Park would occur.

D. **Cultural Resources**

1. Archeological Resources

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), Federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The National Park Service has consulted with the Tennessee State Historic Preservation Office (SHPO) to ensure that the operation, management, and administration of the NPS provide for the site's cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, part 800 and NPS-28, *Cultural Resource Management*.

Coordination with the SHPO will occur and will be closed before a decision by the Regional Director is made.

a. No Action Alternative

It is not anticipated that archeological resources would be disturbed or lost under the No Action Alternative.

b. Build Alternative

By letter dated June 28, 2001, the State Historic Preservation Officer issued a finding that the Build Alternative "will not adversely affect any property that is eligible for listing in the National Register of Historic Places."

c. Conclusions

The No Action Alternative will not affect archaeological resources. All sites within the proposed project limits of the Build Alternative have been mitigated and construction is not likely to effect archaeological resources. No impairment to the Park's archeological resources would occur.

2. Historic Resources

a. No Action Alternative

No historical resources would be disturbed or lost under the No Action Alternative.

b. Build Alternative

Although Shiloh National Military Park is listed on the National Register for Historic Places, construction of the proposed project will not affect any historic structures or buildings.

c. Conclusions

Neither alternative will cause any impact to the Park's historic resources. No impairment to the Park's historic resources would occur.

3. Tribal Resources

a. No Action Alternative

No tribal resources would be disturbed or lost under the No Action Alternative.

b. Build Alternative

The NPS invited the following tribal nations to collaborate on the proposed action: the Eastern Band of Cherokee Indians, the Cherokee Nation of Oklahoma, the Chickasaw Nation, the Choctaw Nation of Oklahoma, the Seminole Nation of Oklahoma, and the United Keetoowah Band of Cherokee. None of the tribal nations expressed any concern with the project as proposed or requested formal consultation proceedings.

c. Conclusions

No impacts to tribal resources are anticipated under either alternative. No impairment to the Park's tribal resources would occur.

E. **Socio-Economic Environment**

1. No Action Alternative

The use of Federal funds for construction would not be required; however it is likely that additional maintenance effort and expenses will be required in order to keep the roads from declining to an increasingly unsafe or impassable condition. Any potential short-term benefits for construction workers would not occur under this alternative.

2. Build Alternative

If the Build Alternative were adopted, there would be some short-term economic gains for construction workers performing the work. The improved state of the roadways could result in a minor increase in tourism for the Park and additional revenue from entrance fees. Short-term maintenance costs will likely decline.

3. Conclusions

Although minimal, the Build Alternative would result in some socio-economic benefits for the community and Park. The No Action alternative would preclude these benefits. No impairment to the Park's socio-economic environment would occur.

F. **Visitor Use and Experience**

1. No Action Alternative

Visitor use and experience will remain essentially the same.

2. Build Alternative

Visitors will experience improved travel conditions throughout the Park. Rideability, traffic, accessibility, and safety concerns will be addressed. Visitors will also be able to appreciate more of the Park's beauty and historic relevance with the construction of new overlooks and historically accurate roadway alignments.

3. Conclusions

With the No Action Alternative, visits to the Park remain unchanged. Under the Build Alternative, the experience will be enhanced with improved travel options, new vistas, and safer roads. No impairment to the visitor use and experience of the Park would occur.

G. Energy Requirements and Conservation

Neither alternative will have a significant impact on energy resources or conservation issues.

H. Natural or Depletable Resources

The use of some natural resources would be required under the Build Alternative in order to complete construction operations, however no natural resources would be depleted. The quantity of materials in comparison to those readily available would be negligible.

I. Cumulative Impacts

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonably foreseeable future projects.

1. No Action Alternative

The No Action Alternative will have little impact on future Park development plans. Under the No Action Alternative, the Park as a whole would remain relatively unchanged. However, the continued degradation of the roadways may begin to effect rideability and visitor enjoyment. Park maintenance expenses can be expected to increase in order to keep the roads functioning in a safe manner. The unaddressed safety concerns may lead to future liabilities for the Park.

2. Build Alternative

The total cumulative impacts associated with this project are anticipated to be minor considering the limited extent of the proposed construction. Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruption to the wildlife species. This alternative would not prohibit or disrupt future Park planning efforts or projects.

3. Conclusions

The No Action Alternative maintains the present condition of the Park, with the exception of increased future maintenance expenditures. Under the Build Alternative the effects are minimal, and any adverse impacts will only occur during construction and are not likely to continue once construction is complete.

J. Irreversible and Irretrievable Commitment of Resources

In accordance with the Federal Lands Highway Program, to date, approximately $3,000,000, in Federal Lands Highway Program funds, have been set aside for planning, design, and construction of the proposed action. If it is determined that the preferred alternative will not result in significant impacts, then construction would be expected to begin in the Spring of 2002.

K. Unavoidable Adverse Environmental Effects

No significant adverse environmental effects are anticipated; however, the /otential exists for archeological resources to be encountered during construction. If this occurs, construction will be halted immediately, so that the resources may be logged and retrieved. An archeologist will be on-site full-time during any excavation operations.

L. Local Short-Term Uses and Maintenance/Enhancement of Long-Term Productivity

Short-Term maintenance costs will decline if the roads are rehabilitated and/or reconstructed in the near future. As a result, the Park may allocate more time and personnel to the protection of the Park's more prominent cultural and natural resources.

M. Compliance with Environmental Requirements

The Shiloh National Military Park currently operates under the direction of the approved *Strategic Plan for Fiscal Years 2000 - 2005 (SP).* Management objectives identified within the *SP* direct the maintenance and upgrading of roadways and associated bridges in order to provide for a positive visitor experience and to ensure effective parkway operations. However, construction and maintenance must be compatible with and sensitive to the resources for which the parkway was set aside.

The 1982 Surface Transportation Assistance Act established the Federal Lands Highway Program (FLHP), which distributes funds from the federal motor fuel tax revenues for the construction and rehabilitation of federal roads, including roads in units of the National Park System. The NPS has developed a plan for a long-term program of road improvement and maintenance with the intent to preserve and extend the surface life of principal park roads, and improve their safety. The FHWA coordinates the design, construction, and maintenance of these roads in cooperation with the NPS. As intended by the Act, the FHWA is designing the proposed roadway rehabilitation project, and construction would occur using 2001 FLHP funds.

The proposed action to perform needed repairs and make improvements to various roadway and parking areas within the Shiloh National Military Park is entirely consistent with the Park's management documents.

1. *National Environmental Policy Act (NEPA)*

   This Environmental Assessment (EA) and resultant decision documents provide disclosure of the decision-making process and potential environmental consequences of the alternatives. This EA will be available for a 30-day public review and comment period, after which the NPS will decide if the proposed action is significant enough to prepare an Environmental Impact Statement (EIS). If an EIS is not required, the NPS's Southeast Regional Director may sign a Finding of No Significant Impact (FONSI). Together this EA and the FONSI will conclude the NEPA compliance for this project.

   All comments and/or questions can be directed to:

   Haywood S. Harrell
   Superintendent
   Shiloh National Military Park
   1055 Pittsburg Landing Road
   Shiloh, TN 38376

   Telephone: (731) 689 - 5696

2. *Endangered Species Act of 1973*

   Section 7 of the Endangered Species Act directs all Federal agencies to use their authority in furtherance of the purposes of the Act by carrying out programs for the conservation of rare, threatened, and endangered species. Federal agencies are required to consult with the U. S. Fish and Wildlife Service (FWS) to ensure that any actions authorized, funded, and/or carried out by the agency does not jeopardize the continued existence of any listed species or critical habitat.

Informal consultation pursuant to the Endangered Species Act was initiated in June, 2001, when a letter was sent to the U. S. Fish and Wildlife Service inquiring whether any Federal or state listed or candidate threatened or endangered plant or animal species or any other special status plant or animal species occur in the project area. The FWS responded on July 10, 2001 that existing records "do not indicate that Federally listed or proposed endangered or threatened species occur within the impact area of the project", and that "the requirements of Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled."

3. *Clean Water Act of 1972*

This Act seeks to restore and maintain the chemical, physical, and biological integrity of the nation's water by a variety of means. Section 404 of the Act directs wetlands protection by authorizing the Army Corps of Engineers to prohibit or regulate, through a permit process, discharge of dredged or fill material into the waters of the United States, including wetlands. Actions described in this document comply with the requirements of Section 404 of the Clean Water Act and all other applicable federal, state, and local agencies.

Water quality in the project area would be protected by the implementation of erosion and sediment controls, such as silt fencing, straw bales, and sediment traps, as needed. Due to the potential for disturbance of archeological resources, silt fencing would only be used near streams and where steeper grades are present and not used in flatter areas with minimal shoulder disturbance. Reseeding and mulching would quickly stabilize disturbed areas. Staff at the Federal Highway Administration (FHWA) would prepare the *Erosion and Sediment Control Plan* for inclusion in the construction plans.

4. *National Historic Preservation Act of 1966*

This Act requires Federal agencies to establish programs for evaluating and nominating properties to the National Historic Register of Historic Places, and to consider the effects of undertaking a proposal on listed or eligible properties. Section 106 mandates that Federal agencies take into account the effects of their actions on properties listed or eligible and to give the Advisory Council on Historic Preservation a reasonable opportunity to comment on said actions, if appropriate.

The NPS has consulted with the State Historic Preservation Officer (SHPO) and would complete any proposed roadway improvements in accordance with National Register of Historic Places standards and criteria. On June 28, 2001, the SHPO concluded that the Build Alternative would "not adversely effect any property that is eligible for listing in the National Register of Historic Places."

All ground disturbing activities associated with the project would be reviewed for archeological needs. Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out in accordance with the National Park Service's Cultural Resources Management Guidelines (RM-28), and appropriate documentation and consultations undertaken.

Although no adverse effects to cultural resources are anticipated with the implementation of the proposed action, measures would be taken to ensure that adequate protection and consideration of cultural resources are carried out throughout the design and construction phases of the project.

5. *The National Park Service Organic Act of August 25, 1916*

This Act states that the fundamental purpose of national parks is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The preferred alternative is supportive of this Act because it is the least intrusive on the natural and historic environment, and maintains the historic road corridor and vista for future Park visitors.

3. *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires Federal agencies to promote "nondiscrimination in Federal programs substantially effecting human health and the environment." In response to this direction, Federal agencies must implement actions to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority and low-income populations. The area surrounding Shiloh National Military Park is a sparsely populated, rural area. The proposed project is located within the boundaries of the National Park, and thus, would not cause the displacement of any residents, nor would it eliminate jobs, low wage or otherwise. The proposed project will be preserving a resource that is important to society as a whole, including low income and minority populations. No minority or low-income populations would be disproportionately affected by the project and it is therefore in compliance with this Executive Order.

V. Environmental Commitments

The No Action Alternative does not meet the purpose and need for the action. Therefore, the Build Alternative has been selected as the preferred alternative since it addresses the roadway, traffic, and safety concerns within the Park. In order to minimize the environmental impacts associated with the preferred alternative, the following measures are recommended for implementation:

1. An Erosion and Sediment Control Plan should be prepared and included in the final construction plans.

2. The final construction plans should include directions to the Contractor for minimizing disturbance of woody and turf vegetation.

3. If additional archeological artifacts are encountered during excavation operations, construction should be halted immediately. The Southeast Archeological Center and the State Historic Preservation Office should be notified immediately.

4. The final construction plans should include directions and specifications to the Contractor for revegetating disturbed areas with non-invasive native plant species.

VI. **Mitigation**

A. Endangered Species

In order to prevent potential adverse impacts to the gray bay and the Indiana bat, the EFLHD and the NPS have been coordinating with the USFWS. The USFWS has recommended the following measures to avoid or minimize potential adverse effects to the gray bat and Indiana bat.

1) Minimizing the removal of trees necessary to accomplish the proposed action,

2) Leaving as many suitable roost trees as possible. Suitable trees consist of snags (standing dead trees) 225 mm in diameter at breast height (dbh) and larger; and live trees 150 mm dbh or larger with loose bark, cracks, or crevices, and

3) Identifying the trees proposed for removal that would provide suitable roosting habitat and removing those trees during the time when bats are not present (ie. September 15 through March 31).

2. Cultural Resources

In order to prevent potential adverse impacts to historic resources, the EFLHD and the NPS have been coordinating with the Tennessee State Historic Preservation Office. In order to minimize the potential for adverse impacts, the project plans should prohibit the disturbance of historic or cultural markers. No markers should be moved from their present locations prior to, during, or subsequent to construction.

The Southeast Archaeological Center has reviewed and approved the mitigation of the archaeological sites of interest in the areas proposed for construction. Mitigation consisted of artifact recovery through shovel tests and metal detecting. All of the recovered artifacts have been taken to the Southeast Archeological Center for cleaning and analysis. Selected artifacts were conserved through electrolysis. All of the artifacts were classified and cataloged in accordance with the guidelines set forth in the *Cataloging Manual for Archeological Objects Volumes I, II, & III* (National Park Service, 1984).

If additional archeological resources are encountered during excavation operations, construction will be halted immediately, so that the resources may be logged and retrieved. The Southeast Archeological Center of the National Park Service will be contacted immediately.

VII. **Environmentally Preferred Alternative**

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which is guided by Council on Environmental Quality (CEQ) regulations. CEQ regulations provide direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Generally, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources." [Question 6a, "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" (40 CFR 1500-1508), Federal Register Vol. 46, No. 55, 18026-18038, March 23, 1981].

The Build Alternative is the most environmentally preferred alternative. The Build Alternative would provide for the preservation, enhancement, and increased understanding of the Park's natural, historic, and cultural resources; as well as, remove human health and safety concerns, and increase visitor use and enjoyment of the Park. The Build Alternative would not provide for maximum protection of the biological and physical environment as compared to the No Action Alternative. However, through mitigation and the use of best management practices, it is believed that any impacts to the natural environment would be minimized and considered insignificant.

VIII. **List of Preparers**

The following individuals contributed to the development of this document:

Federal Highway Administration
- Jack Van Dop, Environmental Compliance Specialist
- Brigitte A. Azran, Environmental Compliance Engineer
- Jeff Johnson, Project Manager
- Robert Morris, Highway Engineer
- Khalid Mohamed, Geotechnical Engineer

Shiloh National Military Park
- Haywood S. Harrell, Superintendent
- Stacy D. Allen, Historian

National Park Service
- Joseph Crystal, Project Manager, Denver Service Center
- Robert Felker, Landscape Architect, Denver Service Center
- John E. Cornelison, Jr., Southeast Archeological Center
- Tammy D. Cooper, Southeast Archeological Center
- Ariana B. Slemmens, Southeast Archeological Center

IX. **Coordination**

As required by NPS policies and planning documents, it is the Park's objective to work with state, federal, and local governmental and private organizations to ensure that the Park and its programs are coordinated with theirs, and are supportive of their objectives, as far as proper management of the Park permits, and that their programs are similarly supportive of Park programs.

Consultation and coordination have occurred with numerous agencies for the development of the alternatives and preparation of the EA. The following people, organizations, and agencies were contacted for information, which assisted in identifying important issues, developing alternatives, and analyzing impacts:

U. S. Fish and Wildlife Service

U. S. Army Corps of Engineers

Tennessee State Historic Preservation Office

Eastern Band of Cherokee Indians

Cherokee Nation of Oklahoma

The Chickasaw Nation

Choctaw Nation of Oklahoma

Seminole Nation of Oklahoma

United Keetoowah Band of Cherokee

In order to give the public and all interested parties a chance to review the EA, it will be noticed for public comment for a minimum of 30 days through local newspapers. During this 30 day period, the EA will be available for review at the Visitor Center of the Shiloh National Military Park located at 1055 Pittsburg Landing Road, Shiloh, Tennessee. Copies of the EA will also be sent to applicable Federal, State, and local agencies for their review and comment.

X. References

Draft Archeological Testing of Ten Areas at Shiloh National Military Park Prior to Highway Rehabilitation and the Construction of a New Monument. Southeast Archeological Center, National Park Service. Tallahassee, Florida. 2001.

Geotechnical Report No. 24-99, Project PRA SHIL 502(1), Shiloh National Military Park, Hardin County, Tennessee. Federal Highway Administration, Eastern Federal Lands Highway Division. Sterling, Virginia. July, 2000.

Strategic Plan for Shiloh National Military Park. Department of the Interior. National Park Service. September, 1999.

Environmental Assessment - Tennessee River Streambank Protection. Department of the Interior. National Park Service. September, 1999.

XI. **Appendix A – Documentation of Agency Consultation**

- FHWA letter dated March 7, 2001 to applicable Tribal Historic Preservation Offices inviting them to consult on the project.

- FHWA letter dated June 27, 2001 to the Fish and Wildlife Service requesting concurrence on our determination that the Build Alternative is not likely to effect any Federally listed threatened or endangered species, and that the proposed action is in compliance with the Endangered Species Act.

- Letter from the Tennessee Historical Commission dated June 28, 2001 stating that the project as currently proposed "will not adversely affect any property that is eligible for listing in the National Register of Historic Places."

- Letter from the Fish and Wildlife Service dated July 10, 2001 stating compliance with Section 7 of the Endangered Species Act has been met.

MAR 7 2001

Refer to: HPC-15

Mr. James E. Bird
Cultural Resources Manager
Eastern Band of Cherokee Indians
P. O. Box 455
Cherokee, NC 28719

Dear Mr. Bird:

In cooperation with the National Park Service (NPS), the Eastern Federal Lands Highway Division (EFLHD), of the Federal Highway Administration (FHWA), is currently preparing plans for the rehabilitation of roadways and parking areas, rehabilitation and replacement of drainage structures, improvements to intersections, and other miscellaneous work in Shiloh National Military Park, Hardin County, Tennessee. This project has been designated Project PRA-SHIL 502(1), etc.

The project involves numerous roadway and intersection realignments to improve sight-distance and safety concerns, widening of some existing roads in order to accommodate two-way traffic, and the construction of a new parking area and some pull-outs. As part of this project, many roads will either be removed or converted to paved pedestrian trails. A copy of the preliminary project plans are enclosed for your reference.

All projects administered and constructed by the FHWA include a full-time, on-site Project Engineer employed by the FHWA. The plans for this project will clearly delineate the project limits and limits of disturbance for excavated material. These limits will be fully adhered to during construction and occur under the supervision of the Project Engineer. If at any time during the construction a change to the limits of disturbance is required, all consulting parties will be notified immediately. No excavation work outside the approved limits will occur until approval by the consulting parties of the change to the plans is received.

Since the Park is listed on the National Register of Historic Places, we have determined that cultural resources may be adversely affected. As part of the planning process, the National Park Service Southeast Regional Archaeological Center will be performing a Phase I Cultural Resource Investigation (including test pits as appropriate). On behalf of the NPS, the EFLHD will be preparing an environmental assessment for this project, and is currently consulting with the Tennessee State Historic Preservation Office regarding this matter to determine if subsequent mitigation will be required.

Pursuant to 36 CFR 800, you are hereby invited to be a consulting party on the subject undertakings. If you wish to participate, please respond in writing by April 9, 2001. If you have any questions concerning this matter, please contact Mr. Jack Van Dop, Environmental Compliance Specialist, at (703) 404-6282.

Sincerely yours,

Alan T. Teikari

Alan T. Teikari, P.E.
Planning & Coordination Engineer

Enclosure

cc:
Mr. Haywood S. Harrell, Superintendent, NPS, Shiloh National Military Park, Shiloh, TN
Mr. Leon Clifford, FLHP Coordinator, NPS-SER, Atlanta, GA
Mr. Toye Heape, Executive Director, Tennessee Commission of Indian Affairs, 7th Floor, L&C Annex, 401 Church Street, Nashville, TN 37243-0745 (w/copy of enclosure)
Mr. Herbert L. Harper, Exec. Director & Deputy State Hist. Preservation Officer, Dept. of Environment & Conservation, 2941 Lebanon Road, Nashville, TN 37243

Federal Highway Administration
HPC-15:Bazran:404-6238:jt:3/6/01:M/Projects/shil/502(1)/p&c/environ/TribeHOP.doc
Cc: EFLHD, Chrono, P&C Rdg., PD (D. Weber)

Identical Letter w/copy of enclosure sent to:

Dr. Richard L. Allen
Research and Policy Analyst
Cherokee Nation of Oklahoma
P. O. Box 948
Tahlequah, OK 74465

Mr. Jefferson Keel
Lieutenant Governor
The Chickasaw Nation
P. O. Box 1548
Ada, OK 74820

Mr. Terry Cole
Historic Preservation Officer
Choctaw Nation of Oklahoma
P. O. Drawer 1210
Durant, OK 74702

Mr. Gary White Deer
Historic Preservation Officer
Seminole Nation of Oklahoma
P. O. Box 1768
Seminole, OK 74868

Mr. Jim Henson
Chief
United Keetoowah Band of Cherokee
P. O. Box 746
Tahlequah, OK 74465

JUN 2 7 2001

Refer to: HPC-15

Dr. Lee A. Barclay
Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
466 Neal Street
Cookeville, TN 38501

Dear Dr. Barclay:

In cooperation with the National Park Service (NPS), the Eastern Federal Lands Highway Division (EFLHD) of the Federal Highway Administration (FHWA), is preparing an environmental assessment for the rehabilitation and reconstruction of various roads within the Shiloh National Military Park in Hardin County, Tennessee. The project includes improving Park roads, parking areas, turnarounds, and the replacement of small bridge. This work has been assigned Project No. PRA-SHIL 502(1).

Ten roads are proposed for improvement, including: Pittsburgh Landing Road I and turnouts, a portion of Pittsburgh Landing Road II, Reconnoitering Road, Eastern Corinth Road, and Peabody Road. These roads will be overlaid with asphalt pavement. Brown's Landing Road requires widening to accommodate two-way traffic between Hamburg-Savannah Road and the Indian Mound palisades. A new parking area and turnaround will also be reconstructed at the Indian Mound palisades. Several roads will be realigned for improved access and to correct safety concerns. These include: Pittsburgh Landing Road I beginning east of Chambers Field and terminating near the front gate of the cemetery, a section of the maintenance service road extending between the existing and proposed Pittsburgh Landing Road I, and the intersection of Eastern Corinth Road with Peabody Road and Bark Road. Additional work will also include constructing two concrete pads off of Brown's Landing Road, removing the retaining wall at Pittsburgh Landing Road II and constructing a bus and 2-car turnaround, replacing the existing bridge on Reconnoitering Road with a bottomless structural plate, rehabilitating the reinforced Portland cement concrete (RPCC) on Cornith-Pittsburgh Landing Road, constructing a new entrance road from Pittsburgh Landing Road I to Corinth-Pittsburgh Landing Road on an existing surface treated road, and reconstructing a gravel tour stop on Peabody Road.

Although no endangered plant species are known to inhabit the Park, a 1994 inventory of the lichens of Shiloh National Military Park verified the existence of a rare, endemic species of lichen (Pertusaria valliculata) in the vicinity of the Park. The Park lies within published geographic range of several threatened and endangered species; including the Indiana bat and the Gray bat. The habitat utilized by these two endangered species is in forested riparian areas along streams and rivers. Previously, FWS records have indicated that seven different species of endangered mussels have historically been found to reside within the Tennessee River adjacent to the Park boundary.

The proposed actions do not involve work in the Tennessee River nor in any other major streams or rivers. Although several listed species are present within the Shiloh National Military Park, it is our understanding from discussions with Park resource personnel that this project to rehabilitate and reconstruct ten Park roads is not likely to affect any Federally-listed threatened or endangered species.

We request your concurrence with our finding that the proposed action is not likely to affect Federally- listed or proposed-for-listing species, and that the proposed action is in compliance with the Endangered Species Act of 1973.

Enclosed please find a vicinity map, photos of the project area, and a copy of the preliminary plans. Once the Environmental Assessment has been prepared, we will provide your office with a copy of the document for review and comment. Questions concerning this matter should be directed to Mr. Jack Van Dop, Environmental Compliance Specialist, at (703) 404-6282.

Sincerely yours,

James E. Sinnette

for Alan T. Teikari
Planning & Programming Engineer

Enclosure
cc: Mr. Haywood S. Harrell, Superintendent, NPS, Shiloh National Military Park, Shiloh, TN

Federal Highway Administration
HPC-15:Evans:dk:6/20/2001:M:\Projects\shil\502(1)\p&c\environ\FWS.wpd
cc: Official Copy, Chrono, P&C, P&C Reading, PD (J. Johnson)

Robert
File

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

June 28, 2001

Mr. Jack Van Dop
Federal Highway Administration
21400 Ridgetop Circle
Sterling, Virginia, 20166

RE: FHWA, SNMP/HIGHWAY REHAB/MONUMENT, UNINCORPORATED, HARDIN, COUNTY

Mr. Van Dop:

Pursuant to your request, received on Tuesday, June 19, 2001, this office has reviewed documentation concerning the above-referenced undertaking. This review is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739)

Considering available information, we find that the project as currently proposed will NOT ADVERSELY AFFECT ANY PROPERTY THAT IS ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES. Therefore, this office has no objection to the implementation of this project. Please direct questions and comments to Joe Garrison (615)532-1559., You may find additional information concerning the Section 106 process and the Tennessee SHPO's documentation requirements at www.state.tn.us/environment/hist/sect106.htm. We appreciate your cooperation.

Sincerely

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jyg

a minimum; if wetland impacts are mitigated; and if Best Management Practices are utilized and enforced, effectively controlling erosion, sedimentation, and other potential hazards. The following conditions are specifically recommended:

1. Erosion and sediment control measures, including but not limited to the following, should be implemented on all vegetatively denuded areas:

    a. Preventive planning: A well-developed erosion control plan which entails a preliminary investigation, detailed contract plans and specifications, and final erosion and sediment control contingency measures should be formulated and made a part of the contract.

    b. Diversion channels: Channels should be constructed around the construction site to keep the work site free of flow-through water, and should be lined with plastic or plastic filter fabric to minimize soil erosion.

    c. Silt barriers: Appropriate use should be made of silt fences, hay bale and brush barriers, and silt basins in areas susceptible to erosion. These structures should be regularly maintained (sediment removal) to prevent undermining.

    d. Temporary seeding and mulching: All cuts and fill slopes, including those in waste sites and borrow pits, should be seeded and mulched as soon as possible.

    e. Limitation of instream activities: Instream activities, including temporary fills and equipment crossings, should be limited to those absolutely necessary.

2. Concrete box culverts or other drainage structures should be placed in a manner that prevents any impediment to low flows or to movement of indigenous aquatic species (e.g., native fish) and should be appropriately sized for the drainage area.

3. Channel excavations required for pier placement should be restricted to the minimum necessary for that purpose. Overflow channel excavations should be confined to one side of the channel, leaving the opposite bank and its riparian vegetation intact.

4. All fill should be stabilized immediately upon placement.

5. Streambanks should be stabilized with riprap or other accepted bioengineering technique(s).

6. Existing transportation corridors should be used in lieu of temporary crossings where possible.

0107164

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

July 10, 2001

Mr. Alan T. Teikari
Planning and Programming Engineer
Federal Highway Administration
Eastern Federal Lands Highway Division
21400 Ridgetop Circle
Sterling, Virginia 20166-6511

Dear Mr. Teikari:

Thank you for your letter and enclosures of June 27, 2001, concerning the reconstruction and rehabilitation of various roads within Shiloh National Military Park in Hardin County, Tennessee (HPC-15). Fish and Wildlife Service (Service) personnel have reviewed the information submitted and we provide the following comments in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The Service is concerned that highway projects accelerate erosion and sedimentation in streams, resulting in adverse effects to the aquatic environment. The use of heavy equipment to move earth and existing vegetation disrupts natural drainage patterns and exposes large areas of disturbed soil to erosion. Lack of suitable sediment and erosion controls and/or infrequent maintenance of sediment control structures can lead to excessive sedimentation and impact fish habitat, degrade water quality, and increase flooding.

Prevention of excessive sedimentation can occur only through application of Best Management Practices during daily construction activities. Rigid application of your agency's erosion control standards can preclude most sedimentation problems; however, in some cases additional measures will need to be taken by on-site inspectors and construction representatives.

Because streams and potentially wetlands are present along the project corridor, U.S. Army Corps of Engineers permits will likely be required. Since permit applications could more thoroughly reveal the extent of construction activities affecting aquatic resources, we will provide additional comments during the 404 review process should the project necessitate Corps' permits. However, we would likely have no objection to the issuance of permits if any necessary stream channel work is held to

Efficient management practices can minimize adverse impacts associated with construction. It is important that these and other erosion and sedimentation control measures be monitored and stringently enforced. This will aid in preserving the quality of the natural environment.

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. However, based on the best information available at this time, we believe that the requirements of Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

Thank you for giving us the opportunity to comment on this action. If you have any questions, please contact Rob Tawes of my staff at 931/528-6481, ext. 213.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor